5-YEAR BUSINESS PLAN 2012-2013

POWERHAWKS ROBOTICS

TEAM 1111

South River High School ◇ 201 Central Avenue, East ◇ Edgewater, MD 21037

Cover artwork by Caitlin Moore, class of 2014

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Executive Summary

Mission

To prepare individuals to be contributing members of society through the experiences of cooperation and competitive robotics programs and year round community outreach.

Vision

To inspire individuals to express their passions and create a positive impact on the global community.

Team Directive

Power Hawks FIRST Robotics Team 1111 creates an environment in which students can learn about themselves and gives them room to excel within their interests. The Team then uses their interests to spread the idea of FIRST to the community through fundraising, community outreach, and mentoring.

The Beginnings

The Team's rookie year was in 2003. The founding coach was Mr. John Jacobson, a physics teacher at South River High School in Edgewater, Maryland. The Team had eight students that year.

Summary of Team Growth

The Power Hawks has 39 students this year (12 females and 27 males). 16 of these students are new. Of our current students, 21 have been involved with FIRST before.

Objectives

By the year 2017, we aim to:

- Increase student confidence by teaching technical and entrepreneurial skills through the creation of robots and relations with the community.
- Prepare students for the future through confidence and new skills.
- Expand outreach and awareness of FIRST robotics and STEM skills to build a network of students for our program.
- Have a renewable source of professional mentors in technical and entrepreneurial fields including parental mentors.
- Achieve financial sustainability.
- Provide a free thinking environment which allows students to express their creativity.

Keys to Success

- Prepare our students by giving them the means to utilize STEM and entrepreneurial skills in a realistic scenario and reinforce the pivotal role played in the community.
- Have an established feeder-system pipeline of students who have been exposed to FIRST robotics by reaching out into the community, promoting science and technology.
- Obtain a Team member-to-mentor ratio of at least 3:1, with mentors of STEM and entrepreneurial experience with a minimum of 10 professional mentors with various skill sets and a program advisor that is a teacher.
- Have a minimum of two-years operation expenses secured.

Sponsors

Platinum Level

National Security Agency

Titanium

NASA

Gold Level

Anne Arundel County Public Schools
Righttime Medical Care

Silver Level

Booz Allen
Daly Computers
Earth Observation Technologies LLC
Family Veterinary Clinic
Government Services Integrated Processing Team LLS
JCPenney
Koons of Annapolis
Microsoft
Multimed Technical Services, INC.
Selby Bay Marina

Bronze Level

Commodore Mayo Kiwanis Club
Eaton Corporation
Hutchison Glass and Mirror
University of Maryland Foundation

Other Sponsors

Arundel Self Storage Annapolis, Bay Engineering Inc., Bit Solutions, Carrollton O. Green, CED Investigated Technologies Inc., Google, John Droter DDS, Kwesi O. Rogers, Lawrence Cooper, M-Cubed Information System, Motorola Solutions, Robert and Crystal Dozier, Thomas Wright, Wells Fargo Bank

Partnerships

Andrews Air Force Base, Anne Arundel County Public Schools, ARINC, MD FIRST, Central Middle School, Family Veterinary Clinic, Google, Government Services Integrated Process Team LLS, JCPenney, Kmart, Menchies Frozen Yogurt, Microsoft Cooperation, Motorola Solutions, NASA, Office Depot, Safeway, South River High School, Sweet Frog

Management and Organization

The Power Hawks FIRST Team 1111 is located at South River High School in Edgewater, Maryland. The Team is a component of the Power Hawks Robotics Club Inc., a registered 501(c)(3) in the state of Maryland. The Team's rookie year was in 2003 and the non-profit club was created in 2009. The Team combines the skills and talents of an average of 40 students and thirty-plus mentors to facilitate the build of a competitive robot and the operation of a business focused on community outreach with the FIRST ideals.

Funding is provided for the Team by various business sponsors located within the area of the high school feeder system as well as a few government organizations. The National Security Agency has also provided a renewable grant that provides a sufficient amount of funding for outreach and basic Team expenses. The grant was reapplied for the fifth time in February 2013.

The Team operates year-round. It produces one FRC robot in January, lasting through February. The Team also provides volunteer services to the community and has community beneficial fundraisers in order to promote the values of FIRST.

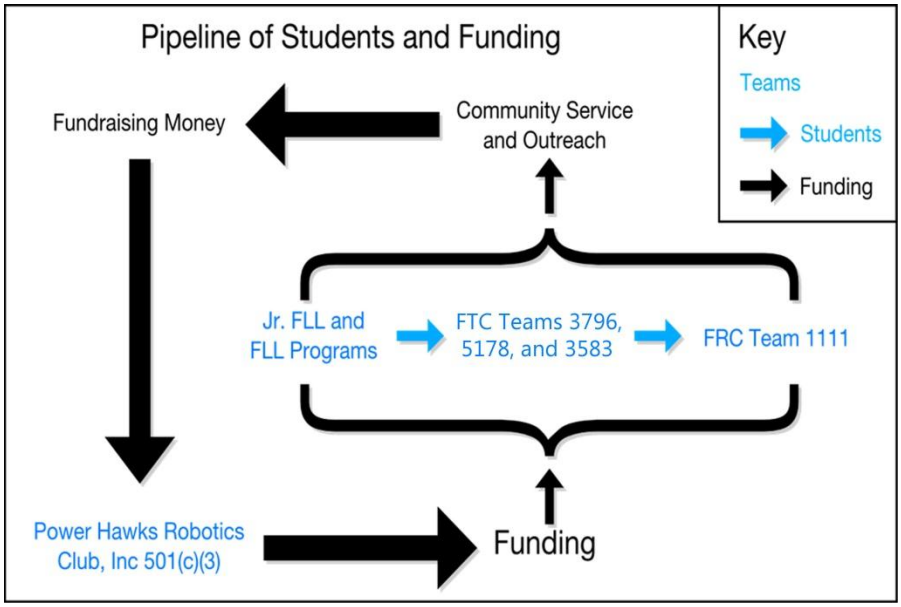

Figure 1: The pipeline of students in relation to funding.

In Figure 1, the relationship between the students coming into the Power Hawks and the funding that the Power Hawks Robotics Club Inc. provides is illustrated. The Club provides funding to Jr. FLL, FLL, FTC and FRC teams. The students in said teams are progressively funneled through the curriculum of the FIRST robotics programs. The students at the FRC and FTC levels participate in various community service and outreach activities which the Club also supports. When the activities are fundraisers, funds are channeled through to the Club to then cycle back through the system.

Management Summary

Power Hawks Robotics Club

The Power Hawks Robotics Club is managed by students, mentors, and a teacher advisor. The leadership roles are based upon succession or election depending on the arm of management.

Students

Student leaders are generally juniors or seniors in high school and are selected to their positions by previous leadership and the mentors. Their responsibilities are to not only be the leaders of their peers, but teachers of basic skills and the liaisons among the mentors.

Advisor

In order to keep the team school-based, the Power Hawks robotics is run by a school or district employee. Mr. Zachary Cohen is the teacher advisor for Team 1111. Responsibilities include coordinating with the school, supervision of students and activities, organization of mentors and students for meetings, and various other small tasks that are vital to the successful operation of Team 1111. He works closely with the Team Executive Officer and other student officers.

Board of Directors (BOD)

Members of the community compose the BOD that control funding for Team 1111 and its efforts. BOD positions are elected posts. They also play a general role on the Team as teachers and facilitators for the build and business funding, planning and implementation.

Legal Entity

Board of Directors

The non-profit Board of Directors is composed of several high-profile business professionals living in and around Edgewater, Maryland. The Board holds annual meetings in August and ad-hoc meetings on an as needed basis.

Personnel

Mr. Richard Chapman: President
Ms. Brooke Chapman: Vice President
Ms. Pamela Russell: Treasurer
Mr. Thomas Dressel: Secretary
Mr. Douglas Reiman: Chairman
Mr. Daniel Marker: Member
Mr. Roger Squires: Member

School Club

The Power Hawks FRC Team 1111 also functions as a school-sanctioned club. Adult liaisons between the school and the club also serve as teacher mentors. There is a Power Hawks fund held by the school to use for field trips and school related functions. The student financial officer is the point of contact for the school fund.

Personnel

Mr. Zachary Cohen; FRC Advisor
Mr. Richard Chapman; FTC Advisor

Organizational Hierarchy

For 2012-2013, the FRC Team 1111 has evolved a dual organizational hierarchy (business and build) to administer the Team operations.

Team Executive Officer

The Executive Officer is immediately responsible for the Business Operations Officer, the Financial Officer, and the Build Operations Officer. This person is in charge of making sure the Team runs smoothly and acts as a sponsorship contact.

Business Operations

This is the administrative portion of the Team structure. This half of the Team consists of specific committees that deal in key areas (e.g. marketing, award entries, and events) of administration.

Business Operations Officer

The Operations Officer is responsible for overseeing all of the business committees and to understand business administration for dealing with a 501(c)3 non-profit organization.

Financial Officer

This person is responsible for approving and keeping track of expenditures as well as working with the school Financial Officer and the Board of Directors Treasurer. They may approve small expenses for the Team up to $250.00.

Fundraising

Is responsible for the organization and the execution of fundraisers.

Sponsorship

Is responsible for sending sponsorship packages and gaining grants from companies.

Events Manager

Is responsible for planning field trips (educational and otherwise), community events, team-building activities, and competitions. This committee is in charge of the Community Service, Demobot, and Spirit.

Community Service

Is responsible for overseeing several groups of students in fields of FTC, FLL, and Jr. FLL mentoring, academic tutoring, and various community service events throughout the year.

Demobot

Is responsible for the creation of the demonstration robots. They are also responsible for the planning and execution of demonstrations as well as introducing FIRST Robotics into the community. This is used as a tool to train new members as well as allowing old members to learn new skills from other sub-teams.

Spirit/Team Building

Is responsible for researching give-away ideas, organizing Team cheers or dances, ordering spirit wear, and communicating with the school for yearbook.

Public Relations

Is responsible for all forms of outside electronic communication. This includes:

- Team Emails
- Phone Tree
- Web Resources

The Power Hawks website at www.powerhawks.org is a form of communication for the Team and the internet world.

A form of communication exclusive to (or only used among the members of) Team 1111 is a school-safe networking site called Edmodo. Team announcements and notices are posted for instant access among members.

Facebook has become a networking tool for the members, alumni, and the general public in the area. It can be improved to attract 'fans' of the Team and become a communication tool between past and present Team members.

Graphic Design

Is responsible for designing advertisements, posters for the pit, and any hand-outs the team would like to pass out at fundraising events, demos, and at competition.

Video and Photo Documentation

Is responsible for collecting and documenting the doings of all of the subteams and taking pictures of the building process.

Website

Is responsible for updating and managing the Team website. They also prepare for the website award and update a Team calendar.

Chairman's

Is responsible for writing the Chairman's essay and creating the Chairman's video with the aid of Video and Photo Documentation.

FLL Qualifier

Is responsible for the planning and the execution of the annual FLL Qualifier and Jr. FLL demo that the Power Hawks host at South River High School.

The Build Operations

This half of the organizational structure is devoted to the six week build season for robot completion. There are several committees and a build administration portion to this side.

Build Operations Officer

This person oversees the build committees that work directly on the robot's systems.

Shop Manager

This person is in charge of Team safety. They are also in charge of planning and overseeing shop days.

Electrical

Is responsible for the electrical systems of the robot. They work closely with Programming and Controls to wire test boards and aid in control connections.

Drive

Is responsible for the design and build of the chassis, as well as choosing the drive system. Drive systems can be chosen with tests, research, and strategy constraints.

Mechanisms

Is responsible for the additional physical systems that the robot will employ to satisfy game play/constraints. This has traditionally included arm, elevator, pneumatic, and conveyor systems. They must work with Drive to determine the chassis' height and constraints as well as planning placement of the mechanisms.

Programming

Is responsible for meeting with other committees to clarify their requirements, practice, program code for prototypes and the final robot.

Controls

Is responsible for creating the controls board. They focus on the sensors and the creation of the driver station for use at competition and pre-competition driver training.

Computer Aided Drafting (CAD)

Is responsible for working closely with the Build Operations to design and test the robot virtually, saving time and money on prototypes and repairs.

Competition Prep

Is responsible for pit design, and practice field set-up/construction. At competitions, they are responsible for pit assembly.

Pit/Field Design

Is responsible for the safety and competition logistics - shipping containers, pit and field mock-up.

Research/Scouting

Is responsible for strategy and rule sharing with the Team. At least one of the members must also be a Chief Delphi communication specialist - checking and posting questions that other members cannot find clear cut answers to. They also set up a scouting program and scouting all teams at the competition so that the Team learns about the other teams and robots at the robotics competition.

Documentation

Is responsible for taking all photos and video of build season and organizing the engineering notebook. This committee must maintain clear communication with all committees on build to have an updated notebook of design, prototyping, and daily reports.

Strategy and Implementation

FIRST Robotics Awareness Plan

Student Recruitment

An objective of the Power Hawks is to have a network of students devoted to learning STEM and entrepreneurial skills. Members of the Team come primarily from South River High School with open applications from feeder schools. There are two levels of the FIRST program that are offered - FRC Team 1111 and three FTC teams 3583, 3796 and 5178.

Pool for Recruits

The student body of South River is composed of two middle schools, (Crofton Middle and Central Middle), and fed by six elementary schools (Central, Davidsonville, Mayo, Edgewater, Crofton Meadows and Crofton Woods). In addition, we periodically reach out to other high schools in the area. Specific team recruitment starts at the sixth through the twelfth grade.

Specific Target Groups:

- Freshman: Flyers and applications are given out to students to learn about the Teams, and offer an opportunity to take the next step and become involved.
- STEM magnet program: These students have already expressed an interest in the STEM fields that Team 1111 provides and are targeted as members for JV and Varsity Teams.
- Project Lead the Way (PLTW): Students have a direct focus on engineering and technology, and are offered information about the Team in those classes.

Outreach for Recruits

The target students are reached through a variety of special events and general appeals. Our application is available on our website to download and print.

Current Efforts

- PLTW Days are events that target eighth graders that show an interest in the program, and showcase engineering abilities and applications for the future. It is indirect recruitment for robotics for in-coming South River High School (SRHS) students.
- The STEM gala is an event that targets prospective STEM students and allows for the robotics Team to start taking polls for early interest about robotics.
- Freshman Day is the first day of school for only freshman students. During lunches they can peruse a club expo in which the Power Hawks participate. They are given some basic information about the Team and have the opportunity to talk to current members.

- Announcements and flyers are posted after Freshman Day as well as when the rest of the school is in attendance. An Application Night is held for prospective robotics members and their parents to explain in more detail the commitment and expectations of the students as members of the Team; this is when applications are turned in. This is also an opportunity to recruit parental mentors for either FRC or FTC Teams.
- Demos at elementary schools in Anne Arundel County to create interest in FIRST and the Team at the elementary level.

Plans for Growth

- Target the middle school further. Use assemblies, newsletters, and other forms of communication to start a growing awareness and interest in robotics. Help to market the current FLL teams at that level to increase recruitment.
- Target the students at the middle school that are in the tutoring program to reach a group of students who would not normally be involved in Robotics.
- Target Elementary schools by creating interest through interactive workshops and creating Jr. FLL teams in the local schools supported and mentored by the Team.

Application Process

After initial interest is shown in the Team, there is an opportunity for the students to apply.

Junior Varsity – FTC Teams 3583, 3796, and 5178

Applications are returned at the parent meeting led by student leadership and the head mentors. The application requires information from the student on their previous community outreach efforts, leadership roles, and past experience with robotics or FIRST. These applications will then be reviewed by the team, coaches, and student leadership.

Varsity – FRC Team 1111

Applications are given to any member of the student body who is interested in pursuing membership to the Team. Applications are reviewed based upon the same fields that the JV application is, in addition to a committee of interest (business or build).

FIRST Robotics Exposure (K-12)

Recruitment for Team 1111 is open to the feeder system of South River High School and surrounding communities, but exposure to FIRST robotics is extended to broader Anne Arundel County, as well as across the state. Through various outreach and school events, kids in grades Kindergarten through twelfth are exposed to a robotics education within their school experience.

Jr. FLL

Jr. FLL in elementary schools are funded or mentored by Power Hawks members. These teams are located in the area surrounding to South River. Team 1111 also provides a Jr. FLL Expo opportunity through our FLL Qualifier, which has reached 18 teams across the state. The age levels that fit into this robotics program are introduced at community outreach events such as the Homestead Gardens Fall Festival and other fundraisers.

FLL (4-5)

The Power Hawks mentors and sponsors 4-5 FLL teams every year. FLL is offered to elementary and middle school age students who, in most public school systems in Anne Arundel County, are not at the same facilities within the school system. As such, there is an issue of finding teacher-mentor support in the elementary schools for a secondary upper-level FLL team with the pre-existence of Jr. FLL in the lower grade levels. There is also a limited source of student mentors from Team 1111. A solution that was developed by Team 1111 to provide guidance to middle school teams that facilitate the mentoring at the elementary schools. The students in this grade level, in general, are exposed to robotics through elementary school demonstrations. Within the past year, we have been able to support and mentor twelve elementary level teams.

FLL (6-8)

FLL at the middle school levels are supported financially and are mentored by Team 1111. Students at this age level are given the opportunity to learn about the robotics program through middle school demonstrations, PLTW Days, and the STEM Gala. The FLL Qualifier is also an outreach opportunity that has historically attracted 500+ people, to promote robotics in the community.

FTC

FTC levels at the high school are supported financially and with mentors from Team 1111. The high school level exposure for outside the Team is identical to that of the FRC levels.

FRC

The FRC level at the high school is supported by the Board of Directors of the Power Hawks Robotics Club Incorporated financially. High school level exposure to the student populations is through yearbook inclusion, school announcements, Back-to-School nights through South River High, STEM Gala, a display case in the media center, and show-bots used in outreach events.

Lifetime Exposure

After high school, robotics exposure is in the form of Anne Arundel County TV, radio, Google links, newspaper, and similar media (Patch.com and Facebook), and through community fundraisers. Team 1111 presentations to businesses in the area and mentor recruitment will also spread the word of FIRST throughout the community.

Professional Growth and Development

The team fosters not only the technical skills by building a robot, but also develops professional skills that are applicable in higher education and careers. The technical and entrepreneurial mentors work to guide the students and introduce new tools of organization. Life skills are also a major aspect of what the team offers to the students.

Mentors

Mentor Recruitment

There are two types of mentors that are recruited for Team 1111: Parental and professional mentors.

Parent nights are a major outreach event to recruit parental mentors. Forms and flyers are supplemental materials that are sent home through the team members. The key to recruit parent mentors is student involvement and student appeal.

Professional mentors can be reached through the various community events such as fundraisers or through sponsoring companies. The Team provides contact information and basic information about the role of mentors on the team.

Mentor Retention

Mentor retention is crucial to having a successful team long after the students have graduated. Parental mentors are generally only on the team for a maximum of four years, though there are exceptions. Professional mentors are more desirable in terms of sustainability. They invest into the team personally, so they generally stay longer than four years as a mentor.

Student Skills

Through mentorship and team values, team members take away certain skills that fall within technical, entrepreneurial and life classifications.

Technical Skills –The Build Operation

Inherent to creating a robot during the six week build season are the use of tools and the practice of shop safety. Even team members that have been assigned to the business committees are given an overview and basic training with the power tools every year.

It is during the build season that students also learn analytical thinking and design skills. The first week of build is devoted to strategy and design. These preliminary designs are then taken and refined through hand sketches, paper models, and CAD models. Final designs are voted on by the entire team.

Troubleshooting and problem solving go hand in hand throughout the final building process. Students use the mentors' knowledge as well as their own innovation to find solutions to various problems that occur during the transition from concept to reality.

To run the build operations and season as a professional firm, the use of various organizational tools facilitates the tasks that need to be completed. Each subcommittee is responsible for compiling a team set of requirements which is a detailed listing of a task's objective and constraints. These teach the students project management and planning skills. The requirements then flow into a Work-Break Down structure.

Entrepreneurial Skills – the Business Operations

The objective of the business operations is to maintain the administrative operations of the team. Every team member, even those that are primarily build, comes away from Team 1111 with public speaking skills.

In terms of organizational skills, students are required to keep meeting notes and important documents. Both the business and the build teams are required to document daily activities and keep a log of events. Captains of subcommittees create documents that are stored physically and virtually for future use.

Operational skills include the specific subcommittee job assignments. These job assignments cover a variety of talents that a business would find desirable in prospective employees. Each student will become involved in some way in the process of completing administrative tasks that fall into one of the subcommittees since they are designed to integrate and collaborate to complete tasks.

All students learn the importance of money management through the development of committee budgets. The importance of following a financial constraint is a real world issue that is being taught to these students early on. The budgets are either approved or adjusted and the committees must plan and work within their means. Event planning is related to the financial needs of the team in regards to fundraisers and outreach support.

Life Skills

Overall, the skills taught to every team member are the important life skills that some students or teens do not develop until much later on. Motivation, focus, determination, and persistence become natural characteristics of the students involved. Communication, responsibility, and leadership are vital in either build or business. Each member of the team invests time and energy into their work, and the team invests in them by teaching them the skills that are applicable in higher education and careers.

FIRST FRC Team 1111 Expectations

Student Expectations

Students are expected to be engaged in the team affairs and have a positive attitude. New members do not need to have previous experience in robotics or business affairs as the true value of the team is the willingness for students and mentors to teach each other. Students are expected to attend meetings regularly and to be an active member of the team. However, students must also keep a 2.5 GPA in order to keep participating during the build season. If any student's grades begin to fall, they are placed into mandatory tutoring with another member of the team during the meeting. Additionally, in all events - outreach, team-building or competitions, students are expected to uphold the values of the Team and their school. They must behave as representatives of FIRST in Maryland and of themselves.

Mentor Expectations

Mentors are expected to serve as teachers and guides. Students are expected to give them respect and mentors in turn are expected to reciprocate. Mentors are

not to make decisions for students, but rather guide them. They are expected to impart not only their knowledge, but their experiences to the students and influence them to pursue STEM or business fields after high school.

Products and Services

Products

Robots

The Power Hawks produces a 120-pound FRC robot and mentors the three FTC teams.

FRC Team Robot

2013 Game 'Ultimate Ascent'

Teams of three robots try to shoot Frisbees into high, medium, and low goals. One such goal is on top of the two metal pyramids on either side of the playing field. There is an autonomous, teleported, and an end game period. During the end game period, robots can climb the pyramid. The higher the robot goes, the more points the team gets.

2012 Game 'Rebound Rumble'

A robotics style basketball game. Teams of three try to shoot in three different levels of hoops. In the center of the court, there is a steel barrier and three bridges. The bridges can be balanced on during the end game to gain points. If opposite teams balance together, coopertition points will be gained. During the autonomous mode, a Kinect may be used.

2011 Game 'Logo-Motion'

Teams of three robots try to score points by hanging inflatable inner tubes in the shapes and colors of the FIRST logo onto a scoring grid of pegs. There are an additional 4 towers on the field that a 'minibot' must climb during the end game. There is an autonomous period, a teleported period, and an end game period.

2010 Game 'Breakaway'

Teams of three robots try to score points by shooting goals. There are four towers and two bumps on the field to divide the zones. There are autonomous, teleported, and end game periods in which the robots can score additional points by climbing the tower, or elevating.

Award Entries

- Chairman's Award – The entire Power Hawks Team works together to complete the Chairman's video and a specific subteam works on creating the essay.
- Woodie Flowers Award – The team choses one of the most dedicated mentors to the team.
- Dean's List Award – The mentor's collectively chose students on the team that they believe are exceptional.
- Entrepreneurship Award – The Business Operations Officer updates the business plan with current information.
- Safety Animation Award – A group of students work together to create a safety animation.
- Website Award – The website subteam manages and updates the team web site.

Service

FRC Team 1111

The original Power Hawk Team, FRC Team 1111, continues to thrive with roughly 40 members. This Team focuses on the production of the FRC robot designed to complete the challenge presented by FIRST on the day of FRC kick-off through February. The structure of the FRC team is intended to give students a taste of the professional engineering world, with subteams oriented for both the building of the robot and for business administration.

FTC Teams 3583, 3976, and 5178

In addition to the FRC Team 1111, the Power Hawks Robotics Club has also grown to include three FIRST FTC teams (3583, 3796 and 5178). Each team consists of ten members that design and create a robot that is intended to play the specific game that FIRST outlines at the beginning of the FTC season. These teams work through September to January competing in up to two competitions, not including states. The smaller team structure of the FTC program helps to train rookie members in shop and programming tools, the ideals of FIRST, the engineering spirit, and gracious professionalism.

Community Efforts

Robotics Oriented Outreach

The main outreach focus for the Power Hawks is to the elementary and middle school levels. The Team has mentored several local middle school teams in the FIRST FLL program, as well as several Jr. FLL teams located in local elementary schools. With a grant provided by the NSA, the Team supports several more FLL and Jr. FLL. The Team has now held FLL Regional Qualifiers in the past four years hosting 16-24 teams.

The Team also mentors other FRC teams. A local team started and the Team has sent students and mentors to help the new team get their start. Build members go to the new team's school and help them to remain organized and problem solve.

Community Service

In addition to the robotics oriented outreach into the community, the Power Hawks have adopted an academic tutoring program for the local middle school. The PHAT (Power Hawks Academic Tutoring) Program is devoted to mentoring and tutoring at risk students. Growth of the program is projected to spread to the other middle schools in the high school feeder system and through to the high school.

The Power Hawks have also participated in multiple charity drives such as 'Soles for Souls' where the teams collected over 100 pairs of shoes for people in other countries. Other involvement was with raising money for the American Red Cross for Haiti Relief, collecting over 400 books for pre-school children and senior shut-ins, Operation Welcome Home, and adopting-a-soldier in Afghanistan, the Ronald McDonald House charities, where the Team donated the first Birthday Boxes. Currently the team is creating and then donating blankets to Ronald McDonald house and the Lighthouse shelter, as well as donating supplies that the shelters may need.

Alumni

Power Hawks alumni are the most valuable products that are produced by the Team. Years on the Team teaches leadership, cooperation through teamwork, humility, overcoming diversity, and other life lessons with the addition of engineering and science principles. With the mentor base coupled with a strong community relationship, the Power Hawks alumni are supported and are ready to enter the real world at the end of their high school career. These individuals are well-rounded and motivated to succeed. Almost 100% of our graduated members attended a four-year college study program. 65% of those pursued a STEM field, 15% of those pursued a dual field, and 20% are professional. The Team is proud to be a part of their educational and social development.

Financials

Financial Overview

The Power Hawks Organization Board of Directors funds Team 1111 and other FIRST teams under the jurisdiction of the Club. The treasurer of the Club and Team Financial Officer approve small expenses, track budgets, and record the funding that comes into or out of the Team.

Funding

Sponsor Process

Planning

The Team develops a list of potential sponsors, of big and small corporations located around Anne Arundel County.

Create Information Packets

A team of students and mentors draft and create the 'sponsorship packages' that are sent to promising potential sponsors from the list of proposed businesses. These packages are purely informational and provide information on sponsorship levels, benefits, the team and contact information.

Send Information Packets

Packages and envelopes are provided to team members. A group of three team members are given three businesses to be the point of contact (POC) for. Members are responsible for sending the letters to the appropriate business.

Follow Up

Follow-up consists of sending a follow up letter and a phone call to the business professionals two weeks after the packages were initially sent. This follow-up is to determine their interest in supporting the team, and provide further information to inquiries they may have on the team.

Offer Demonstrations

For all of the businesses the Power Hawks contact, demos are offered for any events that business may hold or a private demo for management and employees. The purpose of the demo is to build a stronger partnership with the businesses that support the Team and persuade those professionals to take a greater role in the FIRST program as potential mentors or "veteran sponsors."

Thank You Letters

Since the Power Hawks operate under the non-profit club, two sets of thank you letters are sent to sponsors: the tax deductible notification and official Club documentation, and a personal team letter of appreciation. In these letters and updates, sponsors are invited to attend the various events held by the team which include community demos, Kick-off, Robot Send-off, and competitions.

Fundraisers

Members are encouraged to participate in at least one fundraiser. Funds that are raised with these events are channeled into the Team's school account. These events include, but are not limited to: Valentine Flower Sales, Flocking, Car Washes, and Raffles.

Results

NASA House Team

With the aid of one of the Team's mentors who is connected with the NASA Robotics Alliance at the NASA Goddard Space Flight Center in Greenbelt Maryland, the Team became a NASA House Team. So, in return for gaining sponsorship money of $10,000, access to the NASA machine shop and other materials, the Team gives NASA all video recordings from two GoPro cameras. The cameras are located around the Team's work shop and placed onto the robot for a NASA promo video that is made at the end of the year. The Team is one of the three NASA House Teams in the region.

NSA Grant

This is a renewable application of $20,000 is to provide funding for the community outreach projects that the Team organizes and participates in. This does include sponsorship of other FIRST teams at differing levels.

JC Penney Team

A $1,000 sponsorship is granted to the team every year, thanks to the head of Maryland FIRST.

Prosperity Fund

All of the funding that is not spent in a team year is put into the continuation fund of the Power Hawks Club. The goal within the five years is to have two years of operation expenses, saved for the future team to use without having the pressure of dependence on sponsors.

Spending

Budget Development

As part of expanding business affairs to the students, committees submit individual budgets to the BOD for approval. Below is a summary of those budgets and the total.

2012 – 2013 FRC Budgets

Build Committees		
	Programming	$763
	Drive	$2,291
	Mechanisms	$2,567
	Electrical	$487
	CAD	$54
	Controls	$743
	Competition	$1,907
	Subtotal	$8,812
Business Committees		
	Spirit	$80
	Photography	$1,569
	Documentation	$8
	Graphics	$3,335
	Community Service	$715
	Subtotal	$5,707
	Budget Totals	$14,519

Table 1: Summary of the subcommittee budgets

Terms of Reference

Board of Directors (BOD) – Arm of management in the Power Hawks Organization.
Chief Delphi – FIRST resource for FTC and FRC, created by FRC Wings of Fire Team 51.
Edmodo – An online school resource in which teachers can talk to students.
FIRST – For Inspiration and Recognition of Science and Technology, the organization that coordinates robotics teams around the world, providing challenges, opportunities, and finances to students.
FLL – FIRST Lego League, the third highest team formation in the FIRST program hierarchy, offered to elementary and middle school age students.
FRC – FIRST Robotics Challenge, the highest team formation in the FIRST program hierarchy, offered to high school age students.
FTC – FIRST Tech Challenge, the second highest team formation in the FIRST program hierarchy, offered to high school age students.
Jr. FLL – Junior FIRST Lego League, the last team formation in the FIRST program hierarchy, offered to elementary school age students.
Junior Varsity (JV) – Refers to the three FTC teams as part of the school club.
Power Hawks – FIRST Robotics team 1111, not a club organization.
Power Hawks Academic Tutoring (PHAT) – Program initiated by the Power Hawks as an academic mentoring and tutoring program at the nearest middle school.
Project Lead the Way (PLTW) – A national program that partners with STEM to teach the ideals of engineering and science to students who may wish to pursue careers in those fields.
Science, Technology, Engineering, and Mathematics (STEM) – A national program that teaches students professional and technical skills in a curriculum that integrates all classes into a cumulative program.
South River High School (SRHS) – Refers to the school the Power Hawks are located.
The Club – Refers to the Power Hawks Robotics Club Incorporated.
The Team - Refers to FIRST FRC Team 1111.
Varsity – Refers to team 1111 as the school organization.
Work Breakdown Structure (WBS) – System of organizing tasks into a timeline as to track progress.
Work Task Description (WTD) – Descriptions of tasks that are compiled into the WBS.